



West Virginia Health Care Authority

**Healthcare-Associated Infection
Public Reporting Program**

2012 Annual Report

April 2012

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Health Care Authority Board

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Introduction

Healthcare-associated infections (HAIs) can be acquired from any healthcare setting, but patients receiving medical or surgical care in a hospital are particularly vulnerable. According to the Centers for Disease Control and Prevention (CDC), HAIs rank as one of the top 10 leading causes of death in the U.S.¹ It is estimated that there were approximately 1.7 million HAIs in U.S. hospitals in 2002, resulting in nearly 99,000 deaths.² Direct medical costs of HAIs on the healthcare system are estimated to be \$28-\$45 billion annually.³ While age and underlying risk factors increase the risk of patients developing infections, 20%-70% of HAIs are often preventable through adherence to infection prevention guidelines. Infection prevention and control activities in healthcare settings are an integral component of patient safety programs.

In 2008, the West Virginia Legislature created §16-5B-17 to make HAI data available to the public and to promote quality improvement initiatives to reduce HAIs in West Virginia hospitals. The legislation mandated hospitals to report HAI data and required the West Virginia Health Care Authority (WVHCA) to create a HAI Control Advisory Panel to assist in performing the following activities:

- Provide guidance to hospitals in their collection of information regarding healthcare-associated infections;
- Provide evidence-based practices in the control and prevention of healthcare-associated infections;
- Establish reasonable goals to reduce the number of healthcare-associated infections;
- Develop plans for analyzing infection-related data from hospitals;
- Develop healthcare-associated advisories for hospital distribution; and
- Determine a manner in which reporting of healthcare-associated infections is made available to the public in an understandable fashion.

The HAI Control Advisory Panel was initially convened by the WVHCA in January 2009. The Panel consists of representatives from hospitals, the Hospital Association, and Public Health with expertise in infectious disease control and prevention, biostatistics, microbiology, and health policy. The Panel members are listed on page 2.

The WVHCA has been mandated by the West Virginia Legislature to annually summarize and report progress of the HAI Control Advisory Panel and results of required reporting to the Legislative Oversight Committee on Health and Human Resources Accountability.

HAI Measures and Reporting

Annually, the HAI Control Advisory Panel reviews and updates the hospital HAI public reporting requirements. When choosing the measures required for reporting, the Panel considers the impact of HAIs on patient outcomes and the ability for hospitals to collect and report the data. Reporting guidance is developed and distributed to infection control contacts at each hospital. Hospitals submit data to the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN). NHSN was developed as a voluntary surveillance system for hospitals to identify and monitor HAIs, but is being used by multiple states for mandatory HAI reporting. Hospitals give permission for the WVHCA to access the data submitted to NHSN.

West Virginia HAI reporting requirements began in July 2009. In January 2011, the Centers for Medicare and Medicaid Services (CMS) implemented HAI reporting requirements for hospitals participating in the Hospital Inpatient Quality Reporting Program. To reduce the reporting burden on hospitals, the Panel has decided to adopt the CMS requirements as West Virginia's reporting requirements. Table 1 summarizes the measures currently required to be submitted for West Virginia's HAI Public Reporting Program.

This report summarizes data reported on central line-associated blood stream infections (CLABSIs) and healthcare personnel seasonal influenza vaccinations.

Central Line-Associated Blood Stream Infections

Hospitals have been required to report data on central line-associated blood stream infections (CLABSIs) among patients in medical, surgical, and medical/surgical intensive care units (ICUs) since July 2009. This report summarizes the data submitted by 36 West Virginia hospitals and 42 ICUs in 2010. This report marks the first public release of West Virginia hospital-specific CLABSI data from this program.

Healthcare Personnel Seasonal Influenza Vaccinations

Hospitals are required to report the number of personnel directly employed by the hospital (excluding contract employees, volunteers, etc.) that received a seasonal influenza vaccination each season (September to March). All 55 acute care, critical access, long-term acute care, and psychiatric hospitals (excluding state psychiatric hospitals) reported during the first year (September 2009 – March 2010). The reporting requirement was extended to rehabilitation hospitals during the 2010-2011 reporting period (September 2010 – March 2011). Annually, each hospital completes the *Hospital Seasonal Influenza Vaccination Survey* to summarize details of its hospital vaccination program. Due to the complexity of the NHSN healthcare personnel influenza vaccination reporting protocols, the Panel determined that the data would be submitted monthly to the WVHCA.

The WVHCA monitors reporting compliance and provides technical assistance to infection control contacts to ensure timely and accurate data submission. Submitted data are managed and analyzed by the WVHCA and results are disseminated to the HAI Control Advisory Panel for review and approval prior to release. Table 2 summarizes the reporting requirements by hospital.

Table 1
West Virginia HAI Public Reporting
Required Measures

Measure	Hospital/Unit/Procedure	Effective Date	Method	Frequency
Central Line-Associated Blood Stream Infections (CLABSI)	Medical, Surgical, Medical/Surgical ICUs	July 2009	NHSN	Monthly
	All ICUs*	January 2012	NHSN	Monthly
Healthcare Personnel Seasonal Influenza Vaccinations	All hospitals, excluding state psychiatric hospitals and rehabilitation hospitals	Sept. 2009	HCA	Monthly Sept - March
	Rehabilitation hospitals	Sept. 2010	HCA	Monthly Sept - March
Catheter-Associated Urinary Tract Infections (CAUTI)	All adult and pediatric ICUs*	January 2012	NHSN	Monthly
	Medical, surgical, and adult mixed acuity units in acute care and critical access hospitals that do not have an ICU	January 2012	NHSN	Monthly
Surgical Site Infections (SSI)	Colon and Abdominal Hysterectomy Procedures*	January 2012	NHSN	Monthly

*This measure is required by the CMS Hospital Inpatient Quality Reporting Program

Central Line-Associated Blood Stream Infections

A central line is a tube inserted into a large vein in the neck, chest, arm, or groin and is used to administer fluids and medications and to withdraw blood. Central line-associated blood stream infections (CLABSIs) occur when microorganisms enter the blood through the tube.

It is estimated that between 250,000 and 500,000 CLABSIs occur in U.S. hospitals each year, causing serious complications including longer inpatient stays, increased costs, and higher risk of death.⁴ It is estimated that the non-inflation-adjusted attributable cost of CLABSIs range from \$3,700 to \$29,000 per episode.⁵ CLABSIs can often be prevented by adherence to evidence based guidelines for the insertion, use, and maintenance of central lines.

There are various statistics that can be used to summarize and report HAI data at a national, state, or local level over time. The standardized infection ratio (SIR) is a commonly reported summary measure because it adjusts for patients of varying risk within each facility, which allows for valid comparisons between facilities. The SIR compares the actual number of CLABSIs reported by the hospital to the baseline U.S. experience (from the National Healthcare Safety Network aggregate data), adjusting for several risk factors that have been found to be significantly associated with differences in infection incidence. A SIR greater than 1.0 indicates that more CLABSIs occurred in the hospital than what was predicted based on national averages for a hospital of that type and size; conversely, a SIR less than 1.0 indicates that fewer CLABSIs occurred than were expected.⁶ For example, a SIR of 1.20 indicates that the hospital had 20% more CLABSIs than expected; a SIR of 0.80 indicates that the hospital had 20% fewer CLABSIs than expected.

Key Findings

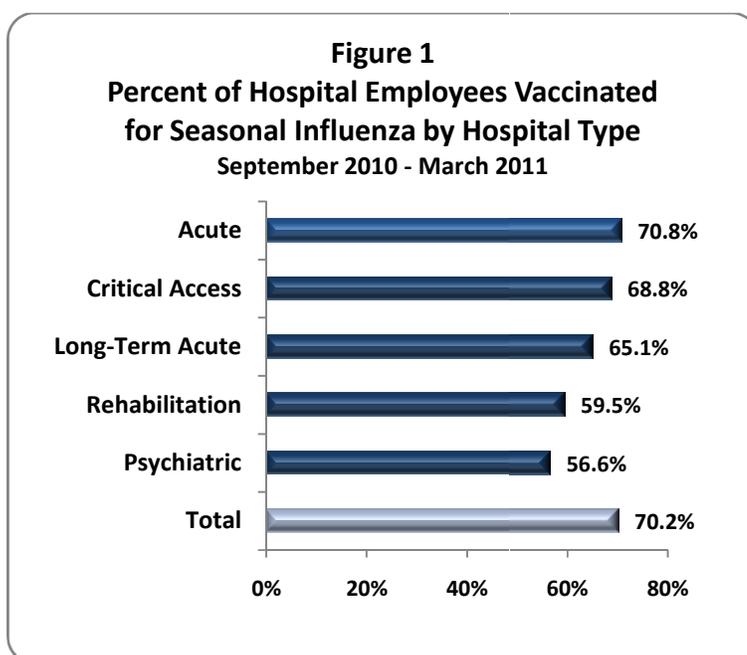
- In 2010, 58 CLABSIs in medical, surgical, and medical/surgical ICUs were reported by West Virginia hospitals.
- Significantly fewer CLABSIs occurred in West Virginia medical, surgical, and medical/surgical ICUs in 2010 than what were expected based on national averages. The West Virginia SIR was 0.61, indicating that 39% fewer CLABSIs occurred than expected.
- Among West Virginia hospitals, the 2010 CLABSI SIR ranged from a low of 0.0 (no CLABSIs reported) to a high of 2.47.
- In West Virginia, central lines are used on about 44% of patient days spent in a medical, surgical, or medical/surgical ICU (47,524 of the 109,058 patient days), compared to the national average of 48%.
- Among West Virginia hospitals, the central line utilization ratio ranged from a low of 1% to a high of 81% of patient days. Central line use is expected to differ based on the type of ICU and patient risk factors.

Healthcare Personnel Influenza Vaccinations

Healthcare workers play an important role in protecting public health. Those who have been vaccinated not only protect their families, but also the patients with whom they interact. Since healthcare workers may care for or live with people at high risk for influenza-related complications, it is especially important for them to get vaccinated annually. The Centers for Disease Control and Prevention (CDC) recommends that all healthcare workers get an annual influenza vaccination.⁷ Several national professional organizations endorse mandatory policies for influenza vaccination as a condition of employment within healthcare facilities, and 87 facilities in 30 states and D.C. have implemented mandatory vaccination requirements.⁸ Detailed data on healthcare personnel influenza vaccinations in West Virginia are outlined in Table 4.

Key Findings

- 70.2% of all hospital employees in West Virginia received a seasonal influenza vaccination during the 2010-2011 influenza season, compared with an estimated 71.1% nationally.⁹
- The seasonal influenza vaccination rate was significantly higher in acute care (70.8%) hospitals than critical access, rehabilitation, and psychiatric hospitals (see Figure 1).
- The percentage of healthcare personnel that received an influenza vaccination ranged from a low of 22.4% to a high of 100% in West Virginia hospitals.



- During the 2010-2011 influenza season, all 60 hospitals provided the seasonal influenza vaccine to all employees at no cost, and 93.3% (56) of hospitals provided the vaccine during all work shifts.
- Hospitals utilized a variety of strategies to promote influenza vaccination to employees. The most common strategies were: A vaccination campaign, including posters, flyers, buttons, or fact sheets (85% of hospitals); Reminders by mail, email, or pager (82%); Incentives (30%); Coordination of vaccination with other annual programs (28%).
- 48% of hospitals conducted formal educational programs on seasonal influenza vaccination for employees. Vaccination was significantly higher among employees from hospitals that provided formal education (72% were vaccinated) than employees from hospitals with no educational program (65% were vaccinated).

Future HAI Initiatives

Over the next year, the WVHCA and the HAI Control Advisory Panel will:

- Continue the collection and quality review of HAI data.
- Develop guidelines for the public release of data.
- Revise reporting requirements as necessary to align with state and national priorities.
- Collaborate with the Bureau for Public Health, Office of Epidemiology and Prevention Service's HAI Program to implement a State Plan for reducing HAIs.
- Provide HAI data to the West Virginia Department of Health and Human Resources as requested for consideration in their hospital oversight and epidemiology and disease surveillance programs.

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Table 2
West Virginia Healthcare-Associated Infection Public Reporting Requirements

Hospital	Hospital County	Hospital Type	Influenza Reporting Required	CLABSI Reporting	
				Reporting Required	Number of ICUs 2010
Beckley Appalachian Regional Hospital	Raleigh	Acute	Yes	Yes	1
Bluefield Regional Medical Center	Mercer	Acute	Yes	Yes	1
Boone Memorial Hospital	Boone	Critical Access	Yes	No	
Braxton County Memorial Hospital	Braxton	Critical Access	Yes	No	
Broaddus Hospital Association	Barbour	Critical Access	Yes	No	
Cabell Huntington Hospital	Cabell	Acute	Yes	Yes	2
CAMC Teays Valley Hospital	Putnam	Acute	Yes	Yes	1
Camden-Clark Memorial Hospital	Wood	Acute	Yes	Yes	1
Charleston Area Medical Center	Kanawha	Acute	Yes	Yes	3
Charleston Surgical Hospital	Kanawha	Acute	Yes	No	
City Hospital	Berkeley	Acute	Yes	Yes	1
Cornerstone Hospital of Huntington	Cabell	Long-Term Acute	Yes	No	
Davis Memorial Hospital	Randolph	Acute	Yes	Yes	1
Fairmont General Hospital	Marion	Acute	Yes	Yes	1
Grafton City Hospital	Taylor	Critical Access	Yes	No	
Grant Memorial Hospital	Grant	Critical Access	Yes	Yes	1
Greenbrier Valley Medical Center	Greenbrier	Acute	Yes	Yes	1
Hampshire Memorial Hospital	Hampshire	Critical Access	Yes	No	
Highland Hospital	Kanawha	Psychiatric	Yes	No	
HealthSouth Rehabilitation Hospital of Huntington*	Cabell	Rehabilitation	Yes	No	
Jackson General Hospital	Jackson	Acute	Yes	Yes	1
Jefferson Memorial Hospital	Jefferson	Critical Access	Yes	Yes	1
Logan Regional Medical Center	Logan	Acute	Yes	Yes	1
Minnie Hamilton Health System	Calhoun	Critical Access	Yes	No	
Monongalia General Hospital	Monongalia	Acute	Yes	Yes	1
Montgomery General Hospital	Fayette	Critical Access	Yes	No	
HealthSouth Mountain View Regional Rehabilitation Hospital*	Monongalia	Rehabilitation	Yes	No	
Ohio Valley Medical Center	Ohio	Acute	Yes	Yes	1
Peterson Rehabilitation and Geriatric Hospital*	Ohio	Rehabilitation	Yes	No	
Plateau Medical Center	Fayette	Critical Access	Yes	Yes	1
Pleasant Valley Hospital	Mason	Acute	Yes	Yes	1
Pocahontas Memorial Hospital	Pocahontas	Critical Access	Yes	No	

Table 2, cont.
West Virginia Healthcare-Associated Infection Public Reporting Requirements

Hospital	Hospital County	Hospital Type	Influenza Reporting Required	CLABSI Reporting	
				Reporting Required	Number of ICUs 2010
Potomac Valley Hospital	Mineral	Critical Access	Yes	Yes	1
Preston Memorial Hospital	Preston	Critical Access	Yes	No	
Princeton Community Hospital	Mercer	Acute	Yes	Yes	1
Raleigh General Hospital	Raleigh	Acute	Yes	Yes	2
Reynolds Memorial Hospital	Marshall	Acute	Yes	Yes	1
River Park Hospital	Cabell	Psychiatric	Yes	No	
Roane General Hospital	Roane	Critical Access	Yes	No	
Select Specialty Hospital	Kanawha	Long-Term Acute	Yes	No	
Sistersville General Hospital	Tyler	Critical Access	Yes	No	
HealthSouth Southern Hills Regional Rehabilitation Hospital*	Mercer	Rehabilitation	Yes	No	
St. Francis Hospital	Kanawha	Acute	Yes	Yes	1
St. Joseph's Hospital of Buckhannon	Upshur	Acute	Yes	Yes	1
St. Joseph's Hospital of Parkersburg	Wood	Acute	Yes	Yes	1
St. Mary's Medical Center	Cabell	Acute	Yes	Yes	1
Stonewall Jackson Memorial Hospital	Lewis	Acute	Yes	Yes	1
Summers County Appalachian Regional Hospital	Summers	Critical Access	Yes	No	
Summersville Memorial Hospital	Nicholas	Acute	Yes	Yes	1
Thomas Memorial Hospital	Kanawha	Acute	Yes	Yes	1
United Hospital Center	Harrison	Acute	Yes	Yes	1
War Memorial Hospital	Morgan	Critical Access	Yes	No	
Webster County Memorial Hospital	Webster	Critical Access	Yes	No	
Weirton Medical Center	Brooke	Acute	Yes	Yes	1
Welch Community Hospital	McDowell	Acute	Yes	Yes	1
West Virginia University Hospitals	Monongalia	Acute	Yes	Yes	2
HealthSouth Western Hills Regional Rehabilitation Hospital*	Wood	Rehabilitation	Yes	No	
Wetzel County Hospital	Wetzel	Acute	Yes	Yes	1
Wheeling Hospital	Ohio	Acute	Yes	Yes	2
Williamson Memorial Hospital	Mingo	Acute	Yes	Yes	1
TOTAL			60	36	42

* Hospital began reporting healthcare personnel influenza vaccinations in September 2010.

Note: State Psychiatric Hospitals (Mildred Mitchell-Bateman Hospital and Sharpe Hospital) are exempt from HAI reporting.

Table 3
West Virginia Healthcare-Associated Infection Public Reporting
Central Line-Associated Blood Stream Infections, 2010

Hospital	Standardized Infection Ratio ^a	Significance vs. NHSN ^b
Beckley Appalachain Regional Hospital		
Bluefield Regional Medical Center	1.71	h
Cabell Huntington	0.51	l
CAMC Teays Valley Hospital	1.46	h
Camden Clark Memorial Hospital	0.45	l
Charleston Area Medical Center	0.52	L
City Hospital (WVUH-E)	2.24	h
Davis Memorial Hospital		
Fairmont General Hospital		
Grant Memorial Hospital		
Greenbrier Valley Medical Center		
Jackson General Hospital		
Jefferson Memorial Hospital		
Logan Regional Medical Center	0	l
Monongalia General Hospital	0	l
Ohio Valley Medical Center	0.55	l
Plateau Medical Center		
Pleasant Valley Hospital		
Potomac Valley Hospital		
Princeton Community Hospital	0.67	l
Raleigh General Hospital	0.42	l
Reynolds Memorial Hospital		
St. Francis Hospital		
St. Joseph's Hospital (Buckhannon)		
St. Joseph's Hospital (Parkersburg)	2.47	h
St. Mary's Medical Center	0.79	l
Stonewall Jackson Memorial Hospital		
Summersville Memorial Hospital		
Thomas Memorial Hospital	0.36	l
United Hospital Center	0	L
Weirton Medical Center	0	l
Welch Community Hospital		
West Virginia University Hospitals	0.65	l
Wetzel County Hospital		
Wheeling Hospital	0.73	l
Williamson Memorial Hospital		
Total	0.61	L

a. All hospitals in this table reported CLABSI data. However, the SIR is only calculated if the number of expected CLABSI is ≥ 1 . When the number expected is <1 , the number of procedures performed is too low to calculate a precise SIR and comparative statistics.

b. Significance of hospital SIR vs. NHSN 2006-2008 average: L = Significantly lower; l = Lower, but not significant; h = Higher, but not significant; H = Significantly higher

Data exported from NHSN on March 1, 2012.

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Table 4
West Virginia Healthcare-Associated Infection Public Reporting
Seasonal Influenza Vaccinations Among Hospital Employees
September 2009 - March 2010 & September 2010 - March 2011

Hospital	September 2009 - March 2010			September 2010 - March 2011		
	% Vaccinated ^a	Rank ^b	Significance ^c	% Vaccinated ^a	Rank ^b	Significance ^c
Beckley Appalachian Regional Hospital*	71.0	28	I	51.2	54	L
Bluefield Regional Medical Center	50.8	50	L	70.4	24	h
Boone Memorial Hospital	95.2	4	H	92.1	5	H
Braxton County Memorial Hospital	85.1	12	H	94.5	4	H
Broaddus Hospital*	52.7	47	L	58.4	41	L
Cabell Huntington Hospital	65.4	36	L	63.3	31	L
CAMC Teays Valley Hospital*	92.7	6	H	97.0	3	H
Camden Clark Memorial Hospital	52.4	49	L	71.9	22	h
Charleston Area Medical Center*	99.6	3	H	99.6	2	H
Charleston Surgical Hospital	81.8	16	H	84.3	8	H
City Hospital	29.9	54	L	56.6	45	L
Cornerstone Hospital of Huntington*	78.8	22	h	82.4	12	H
Davis Memorial Hospital*	99.8	2	H	83.8	11	H
Fairmont General Hospital	63.2	39	L	56.6	45	L
Grafton City Hospital*	52.5	48	L	67.9	27	I
Grant Memorial Hospital	54.2	46	L	77.4	16	H
Greenbrier Valley Medical Center	70.3	30	I	76.5	18	H
Hampshire Memorial Hospital	76.8	24	h	84.3	8	H
HealthSouth Mountainview Regional Rehab Hospital ^{d†}	NA	NA	NA	38.5	59	L
HealthSouth Rehab Hospital of Huntington ^{d†}	NA	NA	NA	62.4	34	L
HealthSouth Southern Hills Rehab Hospital ^{d††}	NA	NA	NA	64.4	29	I
HealthSouth Western Hills Rehab Hospital ^d	NA	NA	NA	57.4	44	L
Highland Hospital*	80.9	19	H	62.0	35	L
Jackson General Hospital	81.4	17	H	78.3	15	H
Jefferson Memorial Hospital	90.2	10	H	68.2	26	I
Logan Regional Medical Center	59.7	42	L	63.2	32	L
Minnie Hamilton Health System	66.6	34	L	61.4	37	L
Monongalia General Hospital*	47.8	51	L	58.4	41	L
Montgomery General Hospital*	86.5	11	H	54.0	47	L
Ohio Valley Medical Center	66.9	32	L	64.1	30	L
Peterson Rehab Hospital ^d	NA	NA	NA	89.1	7	H
Plateau Medical Center	91.5	9	H	78.4	14	H
Pleasant Valley Hospital*	68.4	31	L	57.8	43	L
Pocahontas Memorial Hospital	82.7	15	H	52.5	50	L
Potomac Valley Hospital	65.3	37	L	80.0	13	H
Preston Memorial Hospital*	55.4	45	L	60.7	38	L

Table 4, cont.
West Virginia Healthcare-Associated Infection Public Reporting
Seasonal Influenza Vaccinations Among Hospital Employees
September 2009 - March 2010 & September 2010 - March 2011

Hospital	September 2009 - March 2010			September 2010 - March 2011		
	% Vaccinated ^a	Rank ^b	Significance ^c	% Vaccinated ^a	Rank ^b	Significance ^c
Princeton Community Hospital	81.1	18	H	77.1	17	H
Raleigh General Hospital	93.0	5	H	92.0	6	H
Reynolds Memorial Hospital	74.2	25	h	71.1	23	h
River Park Hospital*	78.9	21	H	52.0	52	L
St. Francis Hospital	70.4	29	I	58.7	40	L
St. Joseph's Hospital Buckhannon	84.9	13	H	84.3	8	H
St. Joseph's Hospital Parkersburg*	73.5	26	h	64.5	28	L
St. Mary's Medical Center*	84.1	14	H	72.6	21	H
Select Specialty Hospital	92.1	7	H	51.7	53	L
Sistersville General Hospital**	58.0	43	L	100.0	1	H
Stonewall Jackson Memorial	66.1	35	L	49.6	57	L
Summers County Appalachian Regional Hospital*	100.0	1	H	73.1	20	h
Summersville Regional Medical Center	66.9	32	L	50.8	55	L
Thomas Memorial Hospital	80.8	20	H	74.4	19	H
United Hospital Center	72.2	27	I	52.2	51	L
War Memorial Hospital	78.3	23	h	47.6	58	L
Webster County Memorial Hospital	20.9	55	L	22.4	60	L
Weirton Medical Center*	57.8	44	L	53.6	49	L
Welch Community Hospital	61.5	41	L	61.8	36	L
West Virginia University Hospitals	62.3	40	L	62.8	33	L
Wetzel County Hospital	45.9	52	L	50.7	56	L
Wheeling Hospital	65.0	38	L	59.8	39	L
Williamson Memorial Hospital	44.1	53	L	53.9	48	L
WV TOTAL (excluding Rehab Hospitals)	72.5			70.5		
WV TOTAL (including Rehab Hospitals)	NA			70.2		

a. % Vaccinated = Percent of personnel that received a seasonal influenza vaccination.

b. Rank: 1=Highest "% Vaccinated." Hospitals with the same "% Vaccinated" share the same rank.

c. Significance of hospital vaccination rate vs. vaccination rate of all other hospitals combined: L = Significantly lower; I = Lower, but not significant; h = Higher, but not significant; H = Significantly higher

d. Rehabilitation hospitals were not required to report data in 2009-2010.

* Off-site vaccinations are not included.

** Unknown whether off-site vaccinations are included.

Note: 2009-2010 and 2010-2011 results may not be directly comparable due to differences in data reporting methodologies. In 2010-2011, the methodology for reporting total number of employees was refined. The 2010-2011 data represent vaccinations among personnel employed at any time during the influenza season, regardless of length of employment. Personnel that terminated employment prior to being vaccinated are included in the results. Therefore, the results may not represent the vaccination rate among current personnel.